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ABSTRACT

This booklet provides basic information about computers, assistive devices for computers, and computer software for young children with disabilities. Guidelines for assessing the child's readiness for computers are provided, as are tips on planning computer-related goals and incorporating computer use into the Individual Family Service Plan and the Individual Education Plan. Fundamentals of computer purchasing and use are then examined, including basic terminology, common misconceptions, and tips on buying used computers. A discussion of assistive technology follows, including descriptions of commercially available input and output devices, computer interfaces, and other computer-related devices. Tips on evaluating software are then presented, including freeware and shareware. Principles of computer and disk care and maintenance are provided, as are basic troubleshooting techniques. Appendices provide listings of newsletters, agencies, and organizations. (Contains 29 references.) (PB)

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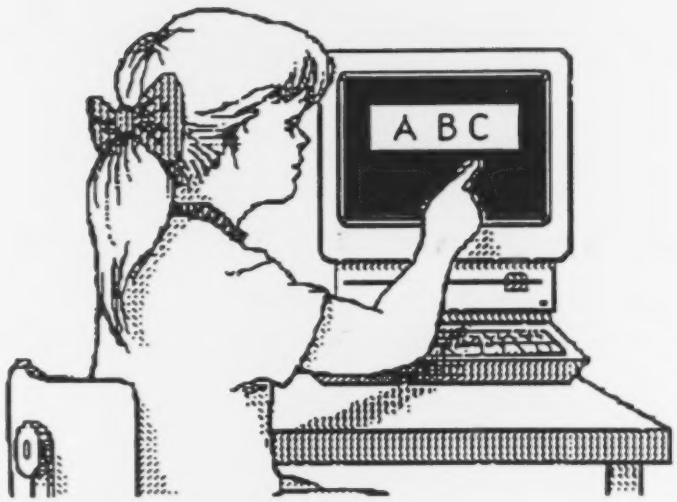
Parent Guide

to Computers and Software

for the Young Child



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Parent Guide to Computers and Software for the Young Child

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November 5, 1993

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Introduction

"Technology has exceeded our early dreams to a large degree, creating the compelling need for new, bolder dreams. We need to imagine a future, rich with tools that are flexible, transparent, inexpensive and seamless in connecting us with the world."

...Jackie Brand, Executive Director, Alliance for Technology Access

A tremendous potential for enriching the lives of children with disabilities lies in using computers. They can help children increase independence and control of their environment by providing tools which encourage interaction with people, objects, and settings. Children learn very early that an action can produce an effect, and it is through actions such as touching, listening, moving, and communicating that children begin to build knowledge of their world.

"Computers are powerful teaching tools because they naturally activate four primary areas of intrinsic [internal] motivation: challenge, curiosity, control and fantasy" (Trieschmann and Lerner, 1990, p. 4). As powerful as they can be, computers do have limitations. They cannot take the place of experiences like walking and climbing or seeing and hearing. The use of a computer cannot act as a substitute for understanding child development, nor can it always take the place of practicing skills in real life situations. The computer can offer wonderful learning opportunities for children, but ideally it is used *as a means to an end, not as an end in itself.* That is, using the computer to help a child gain skills is the goal; not just using the computer.

For children who need help to take part in voluntary, purposeful actions that support learning, the computer offers a variety of options. It can provide a voice and communication for nonverbal children, speech output for those with visual impairments, alternatives for motor control to children with physical impairments, and creative and challenging opportunities for children with cognitive delays and learning difficulties. A combination of appropriate computer equipment, effective software, and advance planning increases the probability that computer learning experiences will be meaningful and beneficial to children.

Knowledge is power! As a child's best advocate, parents need as much knowledge as possible to help shape plans and goals for their children. This Parent Guide to Computers and Software is designed to provide families with basic information about computers, assistive devices for computers and software. Equipped with this knowledge, parents can broaden their vision of solutions to assist their children in becoming active learners in all phases of their lives.

Where Do We Begin?

Where Do We Begin?

In making the decision of whether or not to have your child use a computer, several issues require consideration. One of those issues is *knowledge of your child's current strengths and abilities.* This knowledge provides an important foundation for selecting computer equipment and software because choices can be based on identified needs. Imagine trying to use a TV if you had not learned that you need to turn a knob or push a button to turn it on!

Certain skills are necessary to get the greatest benefit from using a computer. This does not mean that your child should not try one when you are unsure about his or her skills. Who knows what surprises might be uncovered? If you think your child might be ready to use a computer, consider whether he or she:

- **understands cause and effect.**
  EXAMPLE: When **I** hit the table, my **hand** hurts.
  When **I** cry, **mom** picks me up.

- **has some vision or hearing.**
  Visual and auditory (hearing) skills may increase through a child's use of the computer, but a child who does not respond <u>at all</u> to either visual or auditory cues may not be ready for computer use.

- **can attend (pay attention) for a short time.**
  Attention span may increase through computer use, but a child who does not demonstrate an ability to attend may not focus on computer activities.

- **communicates and interacts with the environment.**
  While most young children strive to interact with their environment, some do not. They may not be interested in or reinforced by interaction and could actually fear some kinds of stimulation. These children need to learn more about their world before beginning to use a computer.

- **has some voluntary motor (muscle) response.**
  The motor response may be so small that no other person can see it, but the child should be able to use the movement intentionally.
  EXAMPLE: An eye blink or finger movement.

Adapted from Bowser: <u>Computers in the Early Intervention Curriculum</u>

These guidelines are <u>not</u> hard and fast rules! *As a parent, you know your child best and **you can choose** whether or not to try a computer.* Using suggestions like these simply contributes to the probability of making appropriate equipment choices for your child.

Assessment

Gathering information about your child's strengths and abilities is usually done through some form of assessment or evaluation. Assessments may consist of a variety of activities from parent interviews to formal tests. The choice of which type of assessment(s) to conduct is ideally made by a team of people which may include the parents and child, speech-language pathologist, teacher, occupational therapist, psychologist, or other service providers. Members of the assessment team are often determined by your child's needs and your preferences.

The assessment process is a significant first step in deciding which computer, software and other devices are appropriate. The information gathered can reflect what your child's needs are, which items can best meet those needs and provide justification for using technology. Parental participation is very important since you can give details about what happens with your child in the home or other settings outside of day care or preschool. Identifying strengths and needs from different settings increases the likelihood of choosing effective equipment and software.

The basis of a good plan is to have specific goals to accomplish. Preliminary goal-setting can help keep the assessment process efficient and focused. Predetermined goals also provide families with useful information because the team will know beforehand what kinds of information they want to gather. Below are some examples of factors that might be considered during an assessment.

- Parent's goals for their child
- Abilities and strengths
- Motor (muscle) and mobility (movement) skills
- Positioning needs
- Vision and auditory (hearing) skills
- Cognitive (learning) skills
- Communication skills
- Settings (home, school, playground) where child spends time
- Likes, dislikes and interests of family and child
- Medical needs
- Educational needs
- Family activities
- Social needs

Together, your family and service providers can determine what you want to accomplish through an assessment and you can jointly work toward developing a goal plan that best suits your child.

Setting Goals

Following the assessment process, you and your child's service providers will be in a better position to determine if using a computer is a good choice, and if so, to begin setting goals for using it. Establishing goals is critical because they provide the foundation for good equipment and software choices. For example, if a goal for your child is to improve visual tracking (watching an object move from one point to another), you would choose software that has this feature.

The team format helps ensure that your child's needs from all domains (developmental areas) are addressed. Below are several areas for which computer goals might be written.

- **Communication:** Computers that "talk" or give children something to talk about can increase communication skills. Research indicates that use of a computer with speech output during speech therapy increases a child's language skills more than speech therapy without a computer (Myers, 1985).

- **Perception:** The ability to recognize, see differences in, and put meaning to information are examples of perceptual skills that can be developed with a computer.

- **Social Interaction:** Children who share computers demonstrate increased sharing and turn-taking even when computers are turned off (Clements,1985).

- **Motor:** Computers can be used to help children increase motor skills such as directionality (knowing concepts of right-left, distances, etc.), eye-hand coordination and hand use.

- **Recreation:** The computer may be used as a tool for having fun since it can provide opportunities for independent play like coloring or playing music.

- **Environmental Controls**: Computers can help a child learn the skills needed to operate environmental controls such as lights, TVs and tape recorders. Some control units can be attached to a computer.

- **Creativity:** The computer may be a drawing or writing tool for a child with underdeveloped motor skills.

- **Cognitive:** Skills in this area may be as simple as learning to respond on cue and making choices, or as difficult as learning early reading or math.

- **Mobility:** With a computer placed just out of reach, a child can be encouraged to crawl, walk or pull to standing to operate it. For children who may eventually need to use a wheelchair, joystick skills learned at the computer can transfer to power wheelchair use.

Adapted from Bowser: Computers in the Early Intervention Curriculum

Computers and the Individual Family Service Plan (IFSP) / Individual Education Plan (IEP)

How to write IFSP/IEP goals, whether to name specific devices, and the inclusion of assistive technology services are among the issues to be considered in the development of service plan goals.

Assistive technology (like computers) can be included in the IFSP/IEP in various ways. It may appear:

- in the list of related services necessary for your child to benefit from his or her education;
- in the identification of supplementary aids and services needed to maintain your child in the setting where he or she can learn best;
- in short-term objectives or annual goals.

While identifying a specific device like a computer may be important, assistive technology services might also be an important part of the goal plan. These services may consist of selecting, obtaining and/or using a device, as well as securing necessary evaluations. Other services can include coordinating therapies and activities, and training individuals, their families and service providers. (See section "Assistive Technology – What Is It?" for definition of assistive technology and services.)

Among other things, IFSP/IEP goal statements typically list skills or behaviors that are to be achieved and strategies that are to be used. In developing goals, a key point to remember is that the computer is a useful *tool* for achieving outcomes. Simply learning to use a computer (or software and devices) is probably not an optimal goal since the primary purpose in using technology is to provide additional support for gaining skills. *Assistive technology tools can be used in combination with other activities* to help your child reach specific goals.

The following examples will give you an idea of IFSP/IEP goals that might be addressed using computers (or other assistive technology). These general goals are listed to provide an *overview* of different objectives. IFSP/IEP goals can and should be revised as needed and should always be designed according to your child's individual needs.

Speech/Language Goals

- improve attention to spoken language
- increase ability to indicate wants and needs
- encourage spontaneous language
- improve naming of objects, pictures and action

Cognitive Goals

- develop concept of cause and effect
- increase attention span
- develop matching skills
- develop understanding of sequencing

Social Goals

- develop positive relationships
- encourage choice-making
- develop an understanding of waiting and taking turns
- develop positive self-concept

Perceptual/Motor Goals

- increase weight-shifting and balance by position of input device
- increase body awareness
- enhance visual tracking skills
- encourage motor movements by using switches

Adapted from Bradley: Computers for the Very Young

Computers — What Can They Do?

Computers – What Can They Do?

Computers are in nearly every school in the nation. The *Information Age* is here and now! Our children will use technology in some shape or form all of their lives. If you have ever watched children using computers, you know that they learn to use them naturally and quickly (much faster than adults).

Keep in mind, however, that the computer is just another tool for use in education, work or recreation. Like a pencil or typewriter, it is capable of getting the job done — usually in a quicker and more efficient way!

In addition to traditional uses of the computer, it can be a revolutionary tool for children with speech, language, motor, sensory (vision, hearing, etc.) and learning difficulties. The various types of assistive devices that are used with computers in the '90s are allowing young children with disabilities to participate in many childhood play and learning activities that were not possible just a few years ago. As Laura F. Meyers, Department of Linguistics, UCLA, and an expert on early language has said, "A computer can provide the cognitive scaffolding children need to function as speakers, hearers, writers and readers" (Meyers, 1991).

Buying a Computer

"...I want to get a computer for my child, but I don't know what to buy, what software I need, and where to get help. Computers are expensive and I don't think I can afford one."

These are common concerns of families, especially from those who have children with disabilities. By answering a few questions and following some suggestions, parents can find and often afford a computer to meet their child's needs. This section of the guide will cover things that should be considered when taking the big step of becoming a computer owner and user.

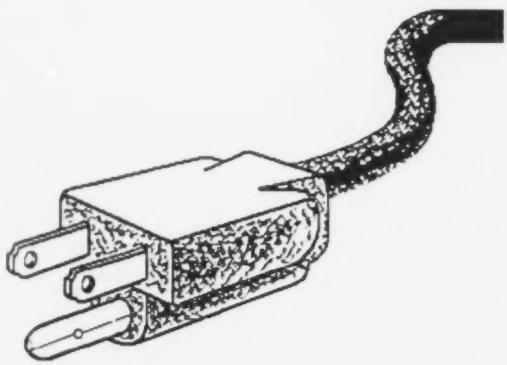
The first question is: *Which of the two big computer families do you want to join: MS-DOS (IBM and compatible computers) or Apple / Macintosh?* The choice can be difficult. Ask yourself:

- What do you want to do with a computer?
- What software is available for it?
- What happens when it needs repairing?
- Does the equipment have the capacity for upgrades (improvements)?
- Do you have a reputable dealer in your area?

- How does the price compare to other computers with similar features?
- What computer is being used at your child's preschool?
- What type of computer seems to be most widely used with young children?
- What are other parents and friends using? Are they satisfied? Is it fun?

Try out as many different computers in as many different settings as you can. Ask questions, take notes — and don't get overwhelmed. You will be surprised how much you will learn about computers in a short time.

Identify the Parts You Need



These components are the same, no matter which system you choose to buy. Typically, you will need: a **CPU**, a **monitor**, a **keyboard**, one or two **floppy disk drives** (5.25 or 3.50), a **mouse**, **adequate memory** to run the software, and sometimes a **hard disk drive** and/or a **printer** (see Computer Terminology List). The parts may be built-in and/or connected to the computer. The combination of the parts is called a "system".

Buy the Basics First

Try to consider your child's anticipated needs during the next five years. Start out by purchasing the computer, devices and software that your child really needs first, because you may be able to upgrade the system later on. Include everything you need in the total price before comparing costs. You may want to wait to buy a printer until your child is older, unless the rest of the family needs to have one now.

When purchasing a new computer, think in terms of buying a computer that has the highest memory (storage capacity) that you can afford. People keep demanding software programs that can do more and more for them in the way of personal or business finances and record-keeping, education and recreation — and the programmers, developers and computer companies don't let them down!

Types of Computers

Try not to be influenced by the fancy technology you will encounter in the stores, but instead focus on what your child's needs might be and your budget limitations. And, don't listen to the argument that kids need to use the computers now that they will encounter in the real world. Who knows what children will be using when and if they enter the business world? Each company is different and will train their employees accordingly. *Students need the capacity to acquire new skills for the workforce, not just be "trained".*

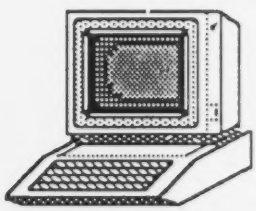
Some of the most frequently used computers in preschools, agencies and homes are listed in the following section.

Apple® II Series

This computer is a solid, durable machine that has been in schools and homes since the early '80s. You may find used models advertised for sale in newspaper ads or through computer user groups. Since they have been popular and sturdy, owners are fondly attached to them and keep them for years. Schools hang on to them because they never wear out! The models most seen are the Apple IIe, Apple IIc and Apple IIGS.

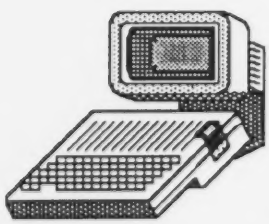
Besides running many educational software programs and having the capacity for attaching various assistive devices, the Apple II computers do the job for word processing, data base manipulation, record-keeping management, and even allow video connections. The software that is available (mostly in schools and from catalogs) for the Apple II is plentiful and good. Apple IIs are fine computers to consider when buying a pre-owned system. However, if you are considering the purchase of a new system, you will want to consider moving on to more current technology.

Apple IIe

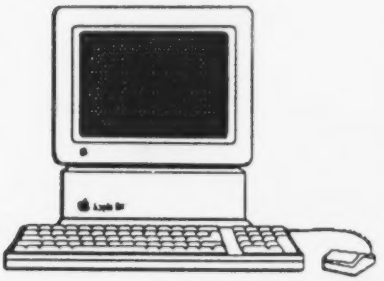


The Apple IIe has the keyboard built into the CPU. You may find the older models with only monochrome (one color) monitors. They could come with one or two attached 5.25 disk drives or a duo disk drive (two side-by-side 5.25 drives in one unit). The Apple IIe is still available new through Apple Computer, but is considered *old* technology.

Apple IIc

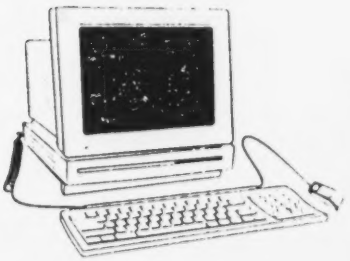


The Apple IIc (IIc+ has a color monitor) is a smaller, more portable computer than the Apple IIe. The CPU has a carrying handle, a built-in 5.25 disk drive and a separate battery pack. This model is not very appropriate for preschoolers or for using with most assistive devices. It has been discontinued by Apple.



Apple IIGS

The Apple IIGS is the most current of the Apple II series and has high quality color and good sound. Memory upgrades are available and this is still a very popular machine with parents and educators. The keyboard is attached by a cable, so it could be placed on a table or lap tray. It usually comes with a 5.25 and a 3.50 disk drive. The Apple IIGS has been discontinued by Apple Computer, but parts and repair service are still available. If you can find a used Apple IIGS, it can be a satisfactory computer for several years.



Macintosh

The Macintosh is also made by Apple Computer and is the computer that Apple is now promoting. There are many types to choose from, and new and more powerful models come out frequently. At the time of this writing, the Macintosh LC line seems to be the most widely purchased for schools and preschool agencies.

There are also new models that have built-in CD-ROM drives, as opposed to adding on a separate CD-ROM player. (CD-ROM software looks like a music CD, but is made for computer use.) CD-ROM software combined with the power of computers is truly exciting. Schools and families across the country will see more of this technology in future years. The addition of CD-ROM to a computer system gives enormous potential for high quality sound, graphics and content. CD-ROM drives are available for both Macintosh and MS-DOS systems.

MS-DOS (IBM® or Compatibles)

Although the MS-DOS (**M**icrosoft **D**isk **O**perating **S**ystem) computer type has been widely used and marketed in the business community for years, it is now seen more frequently in education as well, especially in the upper grades. Most of the popular educational programs presently on the market are available for both the Macintosh and MS-DOS platforms.

The prevalence of IBM compatible (like an IBM) computers has driven down the price of computers in recent years, allowing more families to purchase them. You will find that software stores usually have a larger variety of programs for MS-DOS computers. Due to recent advances in technology, ***some*** software can run in both MS-DOS and Macintosh computers.

Should I Buy a Used Computer?

Some families prefer to buy used systems. These can often be found for a lot less money than what they cost new. They may even come with extra hardware and software. Pre-owned systems can be found in the classified ads, through local vendors (dealers), computer groups or resellers/brokers. You may want to check out these sources before purchasing new equipment. The computer field is changing constantly, so people rarely get back the money that they invest in big or fancy computer systems when they buy new ones.

As a general rule, the more specialized the equipment and software that is needed for your child, the more important it is to have high memory capabilities and the right ports (or holes) for plugging in devices. Some of the older models of computers will not run the latest software or be compatible with software you might buy or borrow. These computers may also be very slow to react or not have color monitors. Before purchasing a used system, make sure that all the plugs on the back of the computer and the cables are working. Ask for all the manuals that go with it. If you look at a system, take along a software program that you will be using and try it out.

Common Misconceptions

Product descriptions are always accurate

Fact: Product descriptions are intended for the general public and often fail to point out limitations for specific users. Remember that printed materials, marketing strategies and sales pitches are designed to sell the product.

Technology is going to change my child's life

Fact: Technology is only one part within the range of life activities for people with disabilities. It may have the potential to change the way your child learns or communicates, and could allow him or her to live a more independent life or have more control over his or her environment.

Technology use depends upon knowledge of computer programming

Fact: If driving an automobile depended upon our knowledge of auto mechanics, there would be fewer drivers! It is a relatively simple matter to learn how to operate a computer and most software programs — if you have some support to back you up.

Introduce technology only when prerequisite skills are developed

Fact: If we believe that children must have certain skills to use technology for learning and living, many of them would end up on waiting lists. Waiting until children are "ready" is contrary to the belief that technology can act as an equalizer in the lives of people with disabilities.

Ask Yourself

- Why are you buying a computer? Are other family members going to use the computer? Is this of primary importance to your family, or is the system *only* for your child?
- How will the computer be used for your child – learning at school? communication? recreation?
- Will your child outgrow this computer, or will her or his needs change soon?
- Is there a place where you can borrow software and devices locally, and if so, are they compatible with the computer you want to buy? Does your school, the public library or a technology resource center in your area loan software or adaptive devices?
- Are there necessary assistive or adapted devices that must be purchased in addition to the basic system?

Remember These Points

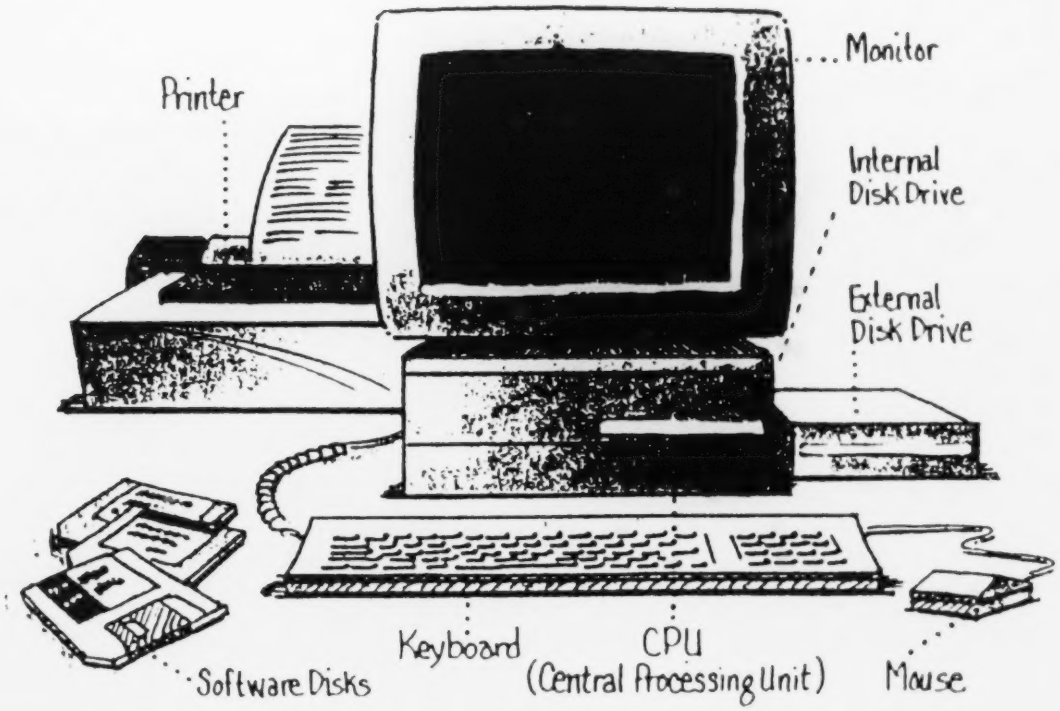
√ Try before you buy and check out product information from a variety of resources before making a final decision.

√ Be sure that you can add on to the system you purchase, especially if your child requires access methods other than the standard keyboard.

√ Before you buy a system, talk with experienced technology resource centers or groups that can provide you with practical information about the advantages and limitations of computers, devices and software .

√ Talk to other parents and service providers who have preschoolers with disabilities or work at preschools or agencies that serve them.

√ Don't be influenced by just one person's advice. Be sure the people that you talk to have knowledge of not only the kinds of computers you are interested in, but also of the needs of your child.

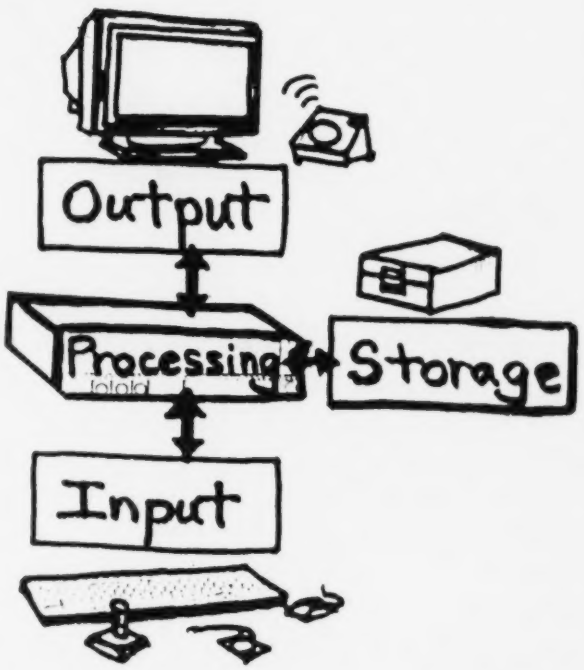


The Standard Computer Setup:

- CPU
- Monitor
- Mouse
- Keyboard
- Disk Drive
- Printer

The Major Hardware Components:

- Processing (CPU)
- Input
- Output
- Storage (disks)



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Computer Terminology List

These are some general computer terms that you will need to be familiar with if you are planning on purchasing and/or using a computer.

Backup – Copying files from the hard drive to floppy disks, or to make a duplicate (extra) copy of a disk or file is referred to as making a backup.

Boot – To "boot" a computer is to start it up by loading a program into memory from a disk. There are two methods of starting a computer – a *cold* boot and a *warm* boot. The cold boot is when you turn the computer on from the main power switch (or a power strip), as when you first turn on the computer. The warm boot is a *three-finger-reset* for rebooting the computer when it is already on and you want to change programs or begin again. You hold down three keys at once, let them go up together, and the computer will restart with the new program. (For Apple II series computers the keys you hold down are OPEN APPLE-CONTROL-RESET. For the Macintosh they are COMMAND (key with apple and flower-like symbol)-CONTROL-RESET. For MS-DOS computers they are CONTROL-ALT-DELETE.)

Cables – The thick wires that connect all the computer equipment together and plug into the wall outlet or power strip are called cables.

Card – A card for a computer is usually a flat, rectangular metallic device with the electrical parts on it that make a computer do special things. It is inserted into the CPU of the computer.

CD-ROM – (**C**ompact **D**isc - **R**ead Only **M**emory) A CD-ROM drive accepts and reads data that is stored on a compact disc. It transfers the data to the computer screen. It can be an external device or built into the computer system. The advantage of using CD-ROM software is that it enables you to store large amounts of data (like stories, pictures and encyclopedias) on a disc without using up the memory on the hard drive of your computer. (When referring to audiovisual equipment, "disc" is used instead of the usual "disk" for computers.)

Character – A letter, digit, punctuation mark or other written symbol used in displaying information (on the screen or the printer) is called a character.

Compatible – This term is used to indicate that the hardware and software can work together or with other computer systems.

Computer System – This is a collective term for a computer and the attached peripheral devices.

Copy Protect – To copy protect is to make a disk impossible to duplicate by ethical means. Commercial software programs are usually copy-protected and may be damaged if users try to illegally copy them.

CPU – (**C**entral **P**rocessing **U**nit) The CPU is the "brains" of the computer. It accepts, retrieves, stores, and organizes information received from the disk or keyboard.

Cursor (pointer) – A cursor is a special character seen on the computer screen which indicates the location where new text that you type will appear. The cursor can take the form of a blinking square, an arrow, a bar or an underlined character.

Disk – A disk is a storage device for computer information. There are two types of disks (also called diskettes): *hard* disks and *floppy* disks. The floppy disks can be inserted and removed from the computer and come in 5.25 and 3.50 inch sizes. The 3.50 disks feel hard to the touch and do not bend, but are still considered to be floppy disks. You should always buy disks that match the size and capacity (how much information it can hold) of your floppy drives. Floppy disks are really classified as *hardware*. This is confusing because disks store software. The software is recorded on the disk.

Data Disk – A data disk is a disk that holds the work you want to save, like letters, pictures, etc.

Disk Drive – A hardware device that holds a disk, receives information from it, and saves information on it is known as a disk drive. There are external and internal disk drives of both sizes (5.25 and 3.50), depending on the computer age and type.

IIe Emulation Card – This is a card that fits into the CPU of a Macintosh LC computer. Used with an external Apple 5.25 disk drive and setup software, it allows you to run Apple IIe software programs on a Macintosh LC computer.

File – A collection of information stored and named on a disk is a file.

Font – A font (typeface) is a specific style of text. As an example, the font you see here is a called a "Helvetica" font. There are many varieties of fonts.

Format (initialize) – To format or initialize a disk is to prepare it to receive information. Disks you buy in the store usually come unformatted and you must go through this procedure before using the disk.

Game Port – A connector or plug on the back of the computer into which such devices as a joystick, touch screen or switch interface connect is called a game port.

Hard Copy – Hard copy is information from the computer that is printed on paper. This could be something like a report, letter or picture you have drawn.

Hard Disk – A hard disk is a storage device for the computer that is faster and can hold much more information than the 3.50 or 5.25 inch floppy disks. It is usually found in the computer CPU, which makes it convenient and accessible for all users. Most new computers have hard disks.

Hardware – Hardware refers to the physical parts of the computer that you can see and touch. This means the computer and the devices that attach to it, such as the keyboard, monitor, mouse and printer. When they are all used together, they are a "system".

Icon – An icon is an image or symbol that represents an object, concept or message. You see it on the computer screen instead of text – as in the Macintosh or some new MS-DOS computers.

Keyboard – The keyboard is the thing you type on when you are using the computer. Information that you type goes into the computer for processing.

Memory – This is the system used by computers to store and recall data and programs. Memory size is expressed in numbers of "bytes". When purchasing a new system, always ask how much memory comes with the computer. You need to match the memory with your software requirements.

Menu – A menu is a listing of commands or options on the screen from which the user can choose. Menus help to make the software programs easier to use. These options may be displayed as text or graphics (pictures).

Monitor – The monitor is the part of the computer that resembles a TV screen. This is where the software will be displayed. There are both monochrome (one color) and color monitors, which come in different qualities of clarity and color. Young children should use color monitors whenever possible.

Mouse – A mouse is a small device used to point at and select menu items, text and graphic objects on the screen.

Peripheral – A device that is connected to the outside of the computer, such as a printer, disk drive, monitor, keyboard or mouse is known as a peripheral.

Port – This is a connection on the back of the computer where users plug in various external (peripheral) devices.

Power Strip – The power strip is a device that allows you to plug in many cables from a computer system. A power strip may have "surge protection" – a feature that protects your computer if there should be an electrical power surge. It is always safest to purchase a surge protector for your home computer, even though it costs a little more than a standard power strip.

Printer – The hardware device in a computer system that types out the information from the computer onto paper (hard copy) is known as a printer. If you are purchasing a printer, consider whether or not you want to have the capability to print in color (which is nice for children). The common types of printers are dot matrix, ink jet and laser (from lowest to highest priced).

Program – A program is a special file on a disk that has instructions to make the computer perform certain functions. It is sometimes called an "application".

Software – Software is what makes the hardware work. If you think of the computer as a radio, think of the software as the radio station which determines what kind of music the computer will play. Software is the reason you bought your computer!

User – The person who uses or operates the computer and any connected devices is called a user.

Write Protect – This is a method of protecting information on a disk from being accidentally erased or changed. This can be done by putting on the little sticky paper tabs that come in a box of 5.25 inch disks or by sliding the tile off the hole of a 3.50 disk. When the disk is write protected, you cannot change, delete, rename, or reformat the disk.

Assistive Technology — What Is It?

Assistive Technology – What Is It?

The term *assistive technology* comes from the meaning of the word "assistive". The dictionary defines assistive as "giving help or aiding". For people without disabilities, the world is full of assistive devices that make life easier and/or more productive. Calculators help figure our bills, our TV's remote control changes channels, and microwaves cook our meals. Just as these and other modern machines help people without disabilities to do things more quickly or easily, other assistive devices can be used by people who have disabilities. New technologies have dramatically increased the abilities of *all* people to experience previously inaccessible activities and environments.

An assistive technology device, as defined in IDEA (Individuals with Disabilities Education Act of 1990), is *"...any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities."*

An assistive technology service is defined as *"any service that directly assists an individual with a disability in the selection, acquisition, or use of an assistive technology device"* (Congressional Report on PL 100-407). These services can include functional evaluation, equipment obtainment, adaptation and fitting, service coordination, and training for the student, family, and other professionals.

Assistive (or Alternative) Devices for Computers

You may have a child who is not able to access (use) the computer in the usual way — with a standard keyboard. Maybe she or he can use a keyboard but cannot see the monitor screen. Perhaps your child is not able to press or release a key, or may have visual or learning difficulties that make it hard to use a computer. Today, a computer can often be modified to compensate for access problems. Some assistive devices are just fun and easier to use for young children of all ability levels.

Assistive technology for computers comes in many shapes and sizes. It may cost a little or it may cost quite a bit. It may require continual training or no training at all. It could be hardware, software or both. The assistive technology needed for your child may be different from the technology needed by a neighbor or friend.

Remember, before purchasing an assistive device, you should have your child evaluated by professionals who work with children with disabilities and who know about the assistive technology that is currently available. Specific needs and abilities, as well as where the technology will be used, must be taken into consideration. You, as the parent, are a partner in this process and the more you tell the professionals about your child's needs and your lifestyle, the more likely they are to recommend the right solution. Ongoing reevaluations are also needed as your child grows and changes. The assistive technology devices he or she has been using for several years may have recently progressed to equipment and software that is more efficient or easier to use.

When you are shopping for computer, keep in mind that the average salesperson in a computer store seldom knows anything about assistive devices, does not have them in the store and does not know how to order them. These devices are usually purchased through vendors who specialize in products for people with disabilities. A computer dealership is a good place to see and try out the latest in computer equipment, but *do not assume that you can add on or <u>not</u> add on the specialized devices that your child needs based on claims of salespeople!*

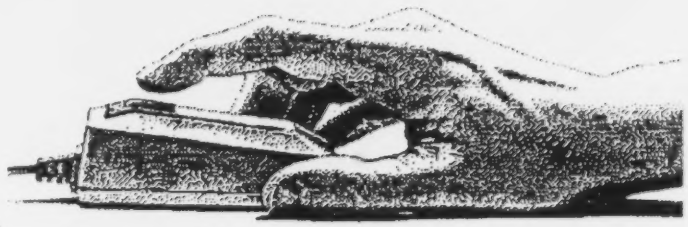
Assistive Device List

The following terms refer to assistive devices that can be used with most standard computers or substituted for parts of computers. This list is not by any means all-inclusive, but represents many of the most commonly used hardware/software combinations and devices for young children. Since costs and products are always changing, consult with vendors for current prices. (See Resources section for Assistive Technology Vendors.)

Assistive devices have been divided into three categories: **Input, Output, and Computer Interfaces.**

1. Input

An input device refers to equipment that enters information into the computer. It could be a keyboard, mouse, switch or an alternative keyboard.



On standard computer systems, the two most common input devices are the keyboard and the mouse, but because they require a lot of physical coordination, many people with disabilities cannot use them. Until a few years ago, that meant they were also prevented from using computers — but not anymore!

- **Mouse** – A mouse is a small device connected to the keyboard by a cable. It usually comes with newer computers and is used to position a cursor (pointer) on the computer screen. The mouse (which has a small ball in the bottom of it) is rolled around on a flat surface. When the user moves the mouse, the cursor on the screen moves too. A "click" button on the mouse puts the cursor where you want it on the screen.

  A mouse emulator (imitator) is an access method that imitates mouse functions. Examples are alternative keyboards, touch screens or switches.

- **Trackball** – This is a ball (similar to a mouse ball) set into a socket on top of the device. It is used for cursor control by rolling it with your finger, thumb or palm, then by clicking a button. A trackball may have a click-lock feature that allows the user to manipulate it with one hand. Trackballs are commonly seen on portable (laptop) computers. Very young children frequently have difficulty controlling this device.

- **Joystick** – This device looks similar to a gear shift on a car. Like the mouse or track ball, it is used to control the computer cursor, and is used most often with games like Nintendo. A joystick allows the use of arm movement to enter information. One specialized joystick for people with disabilities is DARCI TOO™.

- **Switch** – Switches come in a wide variety of sizes and shapes and can even be homemade or adapted to accommodate individual needs. The names of some types of switches are: plate, grip, rocker, leaf, puff, and even an eyebrow switch. You can find a switch for almost any person's requirements. Remember that a switch must be used along with a switch interface (connection device) or keyboard emulator. Sometimes, two or more switches are used by children for cooperative games on the computer. Switches for computers are available from several vendors such as Don Johnston Developmental Disabilities, Inc. and AbleNet.

Switch Use

Switch scanning is a method of computer access where the user moves through choices (such as A, B, C) that are selected by hitting a switch when the choice is reached. Usually scanning involves using a scanning array (a grouping of letters, symbols, etc.), a keyboard emulator and one or more switches.

- A **TouchWindow™** is a touch-sensitive screen that activates the computer when you touch a finger or a stylus (pointing device) to the screen. It attaches to the computer screen with velcro and uses compatible software. Using a touch screen eliminates the distraction of looking back and forth between a keyboard and the screen. The TouchWindow, made by Edmark, is a great device for young children with and without disabilities.

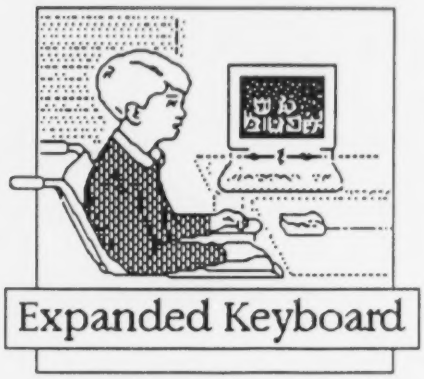
- **Voice Input** (or voice recognition) refers to a computer's ability to learn the spoken words of the user instead of relying on commands typed into a keyboard. This type of input is seldom used with young children since there are many considerations involved for success. The technology is still new and rapidly developing, but the potential is exciting for people with disabilities.

Alternative Keyboard Input

An alternative keyboard replaces or works with a standard keyboard. It is designed to meet specific needs, such as larger-sized pictures or letters for persons with visual impairments, or simplified letters, numbers and commands. An overlay (a cover with symbols) that is used on an alternative keyboard may be commercially available or individually designed by parents, teachers and other professionals. Overlays can make the keyboard less complex and more accessible for young children. Some examples of alternative keyboards are explained below and pictured on the following page.

- **PowerPad™** – The PowerPad is an expanded keyboard that has a programmable (design your own) surface. Like the TouchWindow, the PowerPad uses software made especially for it, but you can also purchase software that allows

you to make your own overlays. The PowerPad is most often used with a device for voice output. It is an especially effective keyboard for young children because it is durable and easy to use. The PowerPad is made by Dunamis.



- **Unicorn Expanded Keyboard™** – This is a large programmable keyboard. It requires the right keyboard emulator — the Adaptive Firmware Card (AFC) for Apple II computers; Ke:nx for the Macintosh; an emulator like DADA Entry for MS-DOS computers. You can make your own overlays to match the software you want to use or purchase pre-designed overlays that work with most standard software programs.

- **IntelliKeys™** – IntelliKeys is an expanded keyboard that requires no additional interface to work with the computer, yet runs most standard software. You plug the keyboard directly into the computer and it works without any extra hardware or software. Different cables are available for different types of computers. IntelliKeys comes with pre-printed overlays, and you can buy software that allows you to create your own overlays.

  Both IntelliKeys and the Unicorn Keyboard, made by IntelliTools, can act as communication devices by running a word processing program that "talks". IntelliKeys is an excellent keyboard to use with young children of all ability levels because it is lightweight, durable and easy for everyone to learn.

- **Muppet Learning Keys™** – This colorful keyboard is sold through the Sunburst Communications software catalog along with its compatible software. Adults can provide additional learning experiences for preschoolers by using the PEAL software and overlays with the Muppet Learning Keys.

Keyboard Emulators

Keyboard emulators (imitators) allow alternate input devices like switches and expanded keyboards to send information like a mouse does, and to operate with standard software. The hardware interface (connection) is between the computer and the alternative device.

For Apple II Computers – Adaptive Firmware Card™ (AFC) – This emulator consists of a card (small, flat electronic device) that is inserted into the CPU of Apple IIe or Apple IIGS computers and a small box with an ON/OFF switch that attaches on the outside of the computer. It can be used to run standard software with an input device.

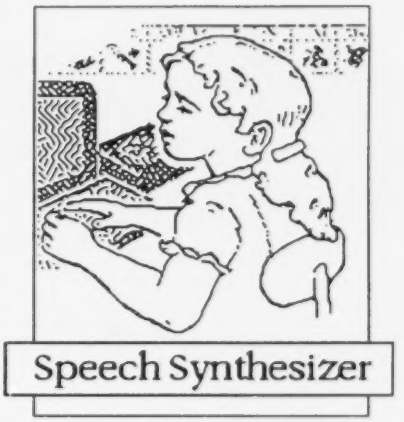
For Macintosh Computers – Ke:nx™ – Ke:nx is an emulator that allows the use of a device or method other than the keyboard or mouse to run software programs. There is a separate box with an ON/OFF switch for attaching devices like switches and alternative keyboards. As part of the emulator package, the user is able to use a program that gives options allowing the creation of setups (adapted or original software instructions) for a child's individual needs. Ke:nx and the AFC are made by Don Johnston Developmental Equipment, Inc.

For MS-DOS Computers – Hardware and software combinations such as **Words+™ products and DADA Entry™** by TASH, are available for MS-DOS computers. These products, like most keyboard emulators, require some training, learning time and support for effective operation.

2. Output

Output refers mainly to hardware devices that receive information produced by the computer and pass it on to the user in an understandable form. For example, an output device could be a standard or braille printer, computer screen or speech synthesizer. Hardware used with specialized software can also be considered as output.

- **Voice (Speech) Output** – This is a hardware device consisting of an external box with a volume control and a card that is placed in the CPU of the computer. It allows the computer to produce sounds similar to human speech. Either a *synthesized* (robotic-like) or *digitized* (human-like) voice is used. People with visual impairments can use a computer with voice output because the device "reads" to them what is on the screen. This device is also good with some individuals who have learning difficulties. Hearing the computer say what is on the screen helps to reinforce early learning concepts for all young children.


Speech Synthesizer

The Echo™ speech synthesizer from Echo Speech Corporation is an inexpensive, widely-used voice output device. Children easily adapt to the robotic speech, but adults have a more difficult time getting used to it. Other more expensive and sophisticated methods of voice output are also available.

- **Augmentative or Alternative Communication Devices (AAC)** These are devices that help people with disabilities communicate with others. *Augmentative* communication refers to communication that supplements speech and *alternative* communication is speech that is produced differently than the usual way (our own voices). An individual with impaired speech may need to use such a system. A complete team assessment should be done to find

the best match of equipment, and regular reevaluations should occur during the course of school and adult life.

Communication devices are usually divided into the categories of low-tech (or light-tech) and high-tech systems. Devices that use electronic technology are considered high-tech systems and usually have voice output with a written display on a small screen and sometimes a printing option. Many of these devices can be plugged into a computer and/or printer. Low-tech devices are simple devices that do not have written or spoken output and are not programmable. Due to the extensive nature of augmentative and alternative communication, consultation with specialists in this field is advisable.

- **Screen Enlargers**

  For a child with low vision, the text and symbols on the computer screen can be enlarged. This is like reading a large print book. Printing larger text puts less information on a page, so more pages are required in the book. For the computer user, more screens for information are required.

  Hardware screen enlarger systems (Closed-circuit TV's) are expensive and may involve extra equipment to be compatible with your computer. Software screen enlargers are much more affordable and numerous and don't require any extra physical devices to be added. The Macintosh computer has software called "CloseView" that comes with the computer and magnifies information on the screen from two to 16 times. Be sure to consult professionals in the field before purchasing hardware or software if your child has a visual impairment.

3. Computer Interfaces

The physical connection between the computer and other devices is called an interface. It allows separate parts of a computer system to work together. As an example, a printer interface cable enables a computer to send information to a printer so it will print on paper.

Switch interfaces are often used with young children who must press or activate a switch in some way to control programs on the computer. It is the hardware that allows the connection of a switch to the computer. Since there are several kinds of switch interfaces used with different computers, it is best to check for compatibility before purchasing or borrowing one.

When asking for this device for an Apple computer, refer to it as an *Apple II Switch Interface*. There is also a *Macintosh Switch Interface*. In the case of MS-DOS, it may be one of several products (*PC-Pedal, BEST Switch Interface, Judy Lynn Software Adapter, etc.*)

Other Computer-related Assistive Devices (non-technical)

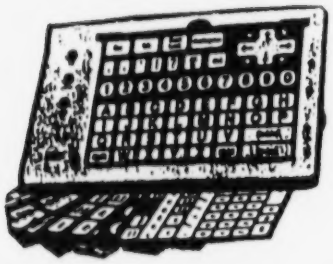
- A **Head Stick** (or head pointer) is an adaptive pointing device that attaches to a helmet or other bracing system strapped on the head. Occasionally, a mouth stick (pointing device that is held in the mouth) is used, but not often with small children.

- A **Keyguard** is a device that covers a standard or alternative keyboard. It allows people who have physical disabilities to slide a pointing device or a hand over the keyboard surface without accidentally hitting keys or resting fingers on the keys too long. Newer Macintosh computers have software included that permits you to turn off the key repeat feature. When the repeat feature is off, it prevents a letter from repeatedly appearing on the screen if the key is accidentally held down. This same feature can be added to an MS-DOS computer through a free software program called "AccessDOS". It is available through IBM.

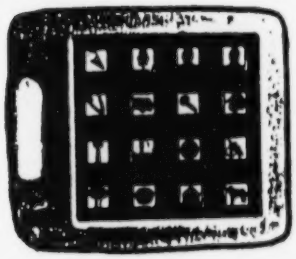
- A **Moisture Guard** is a flexible plastic cover for the computer keyboard that protects it from moisture, such as drooling or spilled liquids.

- **Adapted Toys** often fit a child's particular needs and allow her or him to interact with the environment by playing independently. Adapted toys are sometimes used before introducing a child to the computer. Switches can provide a way to operate adapted toys and even tape recorders. Parents can learn to adapt toys or can purchase them through specialized vendors.

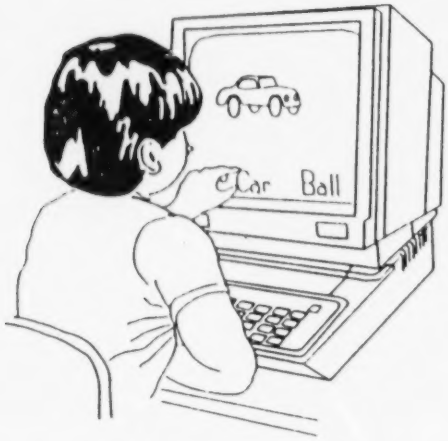
Input Devices



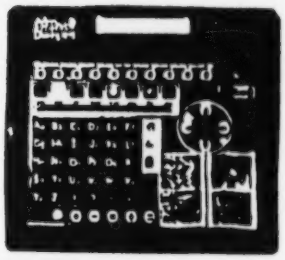
IntelliKeys & Overlays



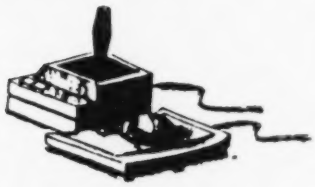
PowerPad



TouchWindow

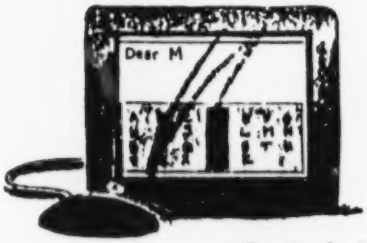


Muppet Learning Keys



Joystick & Trackball

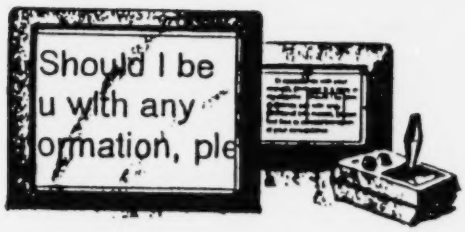
Soft Switch



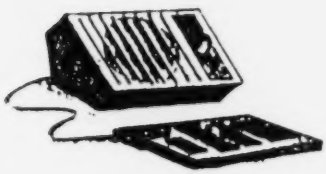
Switch Scanning

BEST COPY AVAILABLE

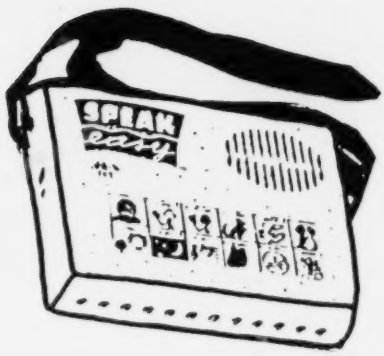
Output Devices



Screen Enlarger

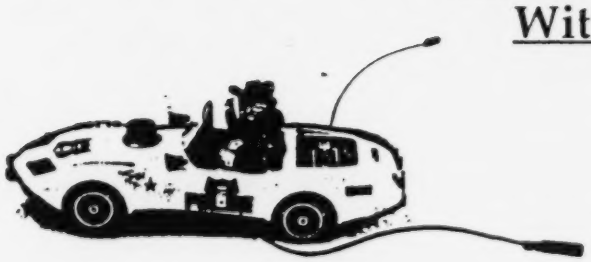


Speech Synthesizer

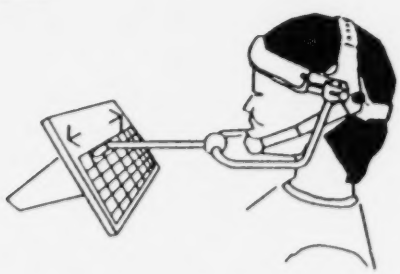


Augmentative & Alternative Communication (AAC)

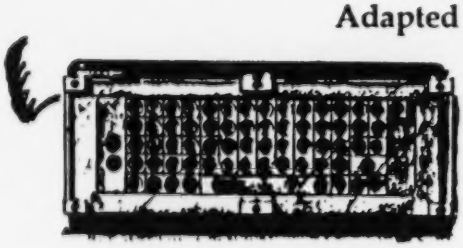
Other Devices Used With Children



Adapted Toy

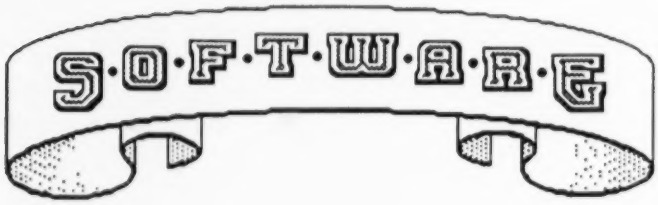


Headpointer & Mouthstick



Keyguard

Software — What Do I Need?



Software – What Do I Need?

Computers are not smart. They appear to be smart because of the software you use with them. Without software, computers can do absolutely nothing; therefore, *know what you want to do with a computer before you spend your money on software.*

Software can range in price from thousands of dollars to nothing. You can buy software that costs $1,000 and it may not work as well as a program that costs $50. Many exciting new software programs for young children are now on the market. When buying a program, check the recommended age range for the product. A program that's too challenging will be discouraging and one that is too easy won't hold your child's interest very long.

In shopping for software, you have three sources. These are **commercial, shareware** and **public domain**.

√ **Commercial Software** is produced by publishers who usually advertise in major computer publications, spend many hours writing programs and charge accordingly for their products. This software is available at computer and software stores, discount stores and through vendor catalogs. ***Remember that it is against the law to copy commercial software, except for archival (backup) purposes.***

√ **Shareware** is also produced by publishers. You can legally copy shareware, but if you like it, the authors expect that you will send them a donation. In turn, they will usually send you a manual, any future upgrades and give telephone support if you need it. Shareware has become a very popular source of software over the past few years. People who develop shareware do not market their software in the same fashion as commercial publishers do since advertising is very expensive. These programs are often passed around by individual users or are distributed through computer user groups or technology resource centers.

√ **Public Domain Software** is written by people who enjoy programming and don't require payment. As the name implies, public domain software can be copied freely and is seldom accompanied by manuals or support. It is usually obtained through other users, computer user groups and technology resource centers.

Types of Software for Children

- **Drill and Practice** – Programs that reinforce information previously learned and provide the child with practice are classified as drill and practice. In the usual drill and practice program, the computer presents a problem, waits for an answer, and then tells whether the answer is right or wrong. Some programs keep score and total the numbers of correct and incorrect responses.

- **Educational Games** – These are educational programs that are drill and practice programs built into a game format. Some are designed for the development of logical thinking or problem-solving skills. They may be used for learning and enjoyment, cooperation and socialization, improving attention span, or for recreational family activities.

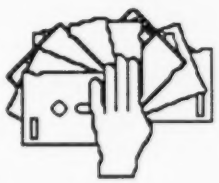
- **Simulation** – This is software that allows the user to experience real life situations in the low-cost, low-risk environment of a computer.

- **Problem-Solving** – These programs stimulate children to increase their thinking skills by presenting problems which they must solve.

- **Tutorial** – Tutorials are a form of instruction. They may introduce information, present examples and provide practice. If children understand the concepts or objectives being taught, the computer may branch (move on) to a more challenging level. Many preschool programs are tutorials.

- **Word Processing** – Word processing is a way to produce written communication by entering text (letters and words) into the computer. These programs allow you to create, revise, edit, save and print your work. Documents (files), are stored on a hard drive or floppy disk. Most preschoolers will not use this type of program until they are in kindergarten, but there are new flexible programs with some word processing features that are geared toward the young child.

Software Selection



Due to an ever-increasing selection of software, choosing computer programs can seem overwhelming. Most software vendors provide brief program descriptions which can be helpful, but generally, it is using the software that helps you determine if the program useful. Some companies allow buyers a trial use period before the purchase or have a money-back guarantee, but many do not. You may be able to preview and/or borrow software at a technology resource center or arrange to try it at a local school. If you do not have the opportunity to "try before you buy", ask advice from someone who has previously used the program.

There are several features to look for that can help you and your child's service providers make sound decisions about software. Keep in mind that individual software programs will probably not have all the characteristics listed.

Selection Guidelines

Does the software...

- require certain skills (spelling, reading, math)?
- meet specified goals or objectives (as in an IFSP)?
- stimulate a variety of senses (hearing, vision, movement)?
- allow adjustments (speed, color, sound) for individual needs?
- provide immediate, appealing and positive feedback?
- provide gentle guidance for incorrect answers?
- help the user to know what to do next?
- encourage thinking skills?
- provide different levels of difficulty?
- provide the opportunity for the user to control it?

Is the software...

- reasonably priced?
- available for different types of computers?
- memory requirement OK for your computer?
- usable with assistive devices?
- manual easy to read and understand?
- company supportive to its customers?
- upgrade (improvement) available for little cost?

You may not be able to answer all of these questions and that's OK! Other people (service providers, family, friends) can probably help by looking at software with you. Sometimes, software choices (and equipment choices) will not meet your expectations. In that case, simply try something different.

Preschool Software

As previously mentioned, several types of software are available, and each type of software has different "categories". These categories refer to the subject or skill area the software is designed for. For example, Bailey's Book House by Edmark falls in the pre-reading/language category, but is a type of simulation since it uses real life situations to teach skills.

While some programs provide practice only for the skill area intended, other software can be used for several different skill areas. Whether to buy programs that address specific skills or programs that can be used more broadly depends on your child's needs and the goals you hope to accomplish.

In the Resource section of this guide, you will find lists of software companies and some recommended preschool software programs. The programs are listed by categories with the publisher's name given after each title. *There are many software titles available in addition to these recommendations.* These lists reflect a sampling of highly regarded programs.

Hints and Troubleshooting

Helpful Hints and Troubleshooting

No matter which computer you purchase, what type of software you buy or how much it costs, certain standard procedures should be followed when caring for all computers and disks.

Computer Troubleshooting

Most computers are tough and seldom need repairs, but you can do some simple problem-solving that may save some money and time waiting for repairs to be completed. Most of us have found out the hard way that what we thought was a major problem was often something as simple as a loose cable. It pays to check the obvious things first before starting to panic.

These hints will not take the place of a good manual or a purchased book about the type of computer that you are using. These are just some basic things that should be avoided or checked before you dig deeper into the manual or call up your neighbor. There are differences between each computer type, and therefore we hope that you consult the appropriate sources for assistance (the dealership where you purchased the equipment or software, the person you bought a pre-owned system from, a knowledgeable friend or neighbor, etc.).

Ways to Avoid Problems

- Make sure all cables are plugged in securely before you start your computer.
- Never plug or unplug anything while the computer or the attached devices are on.
- If the computer has cooling vents or fans, do not cover them or put things on them.
- Do not quit software programs by turning off the power switch.
  - √ Shut down in the proper sequence on the Macintosh.
  - √ Quit to the DOS prompt (c:\>) on an MS-DOS computer or use a warm boot to start another program.
  - √ You can shut off a program on an Apple II without harming it, but use a warm boot for starting a new program.
- Do not move, hit, or shake the computer or the peripherals (attached devices) when the computer is on.
- Do not restart, shut down, or turn off the computer while it is reading information from or writing to a floppy or hard disk.
- Wait 20 to 40 seconds before turning the computer on again after turning it off.
- When all else fails, turn off the computer and start over. If that doesn't work, call that friend, neighbor or computer dealer for advice.

Do not permit permit children or other family members to eat or drink around a computer. This is just one way to have the computer end up in a repair shop. If spilled onto (and usually into) a keyboard, drinks of all kinds can cause serious damage. If this happens, wipe it dry and turn the keyboard over – quickly!

Spray cans of compressed air can be used to spray dust and dirt out of keyboards and hard to-get-at places in the computer. Small hand vacuums can also be used to keep your computer keyboard clean. Use a mild cleaner to wipe down the outside of the computer and a glass cleaner for the screen (spray the cleaner onto a cloth rather than directly on the computer). A cotton swab (Q-tip) moistened with cleaner can be used to wipe on and around the keys. Special products for cleaning computers are often available at office supply stores, computer and discount stores.

Disk (or Diskette) Care

- Avoid static electricity.
- Keep disks in their protective envelopes (sleeves) when not in use.
- Store disks in an upright position, preferably in a disk box.
- Use only felt pens to write on disk labels.
- Protect disks from dust.
- Avoid excessive heat or cold.
- Do not touch the magnetic surface of the disk (the part that looks like film).
- Keep all magnetic objects away from the computer and disks.
- Do not lay disks on top of disk drives or other electrical devices.
- Do not bend, fold, or use paper clips or rubber bands on your disks.
- Do not place heavy objects on disks.
- If the disk drive door latch doesn't close, then the disk isn't inserted properly.
- Never put in or remove a disk from the drive when the red light is on.
- Never force a disk into a drive.

If the disk drive spins longer than a few minutes or the red light on the disk drive stays on for longer than a minute, turn off the computer, take out the disk and check to see that it was inserted properly. You could have a faulty disk, so try another disk. If the disk drive makes loud noises while the red light is on, the disk may not be formatted properly. If this happens again when you have reformatted it, you probably should throw the disk away.

If the program will not run...

- check to see if a write protect sticker is on the punched out part at the top of your 5.25 inch disk. Some programs will not run with this sticker on.
- check to see if you accidentally put in a data disk instead of the program disk.
- check to see if you have put in the wrong side of the disk.

Make backup copies of ALL DISKS! You can be certain that someday you will have a problem that will cause you to lose information that may be important to you. Store the data disks in a safe place and label them with the date of the backup.

Resources

APPLE IIe and IIGS SOFTWARE FOR EARLY LEARNING

Commercial Programs

SWITCH/CAUSE & EFFECT

Creature Capers (Laureate)
Children's Switch Progressions (R.J. Cooper)
Early and Advanced Switch Games (R.J. Cooper)
Eency Weency Spider (UCLA/LAUSD)
Interaction Games I and II (Don Johnston)
Make It Happen (Don Johnston)
Master Blaster (Macomb Projects)
Switch It - Change It (UCLA /LAUSD)

LANGUAGE/PRE-READING

Charlie Brown's ABC (Random House)
PEAL Programs (PEAL)
Explore-a-Classic (William K. Bradford)
First Nouns & First Verbs (Laureate)
McGee Series (Broderbund)
Muppet Slate (Sunburst)
Peek & Speak (Macomb Project)
The Playroom (Broderbund)
Stickybear ABC (Optimum/Weekly Reader)

MATH

Colors and Shapes (Hartley)
Comparison Kitchen (DLM)
Curious George Goes Shopping (DLM)
Early Learning Mix-n-Match (Marblesoft)
Early Learning I (Marblesoft)
Math & Me (Davidson)
Number Farm (DLM)
Stickybear Numbers (Optimum/Weekly Reader)
Stickybear Shapes (Optimum/Weekly Reader)

VOICE OUTPUT WORD PROCESSORS

Dr. Peet's Talk/Writer & ABC Discovery (Hartley)
IntelliTalk (IntelliTools)
Keytalk (PEAL)
Talking Text Writer (Scholastic)

GRAPHICS/ART

Electric Crayon Series (Merit)
Facemaker/Golden Edition (Spinnaker)
Micro Illustrator (Dunamis)
The Print Shop (Broderbund)
Stickybear Drawing (Optimum/Weekly Reader)

MACINTOSH SOFTWARE FOR EARLY LEARNING

Commercial Programs

SWITCH/CAUSE & EFFECT

JOKUS Series (Don Johnston)

LANGUAGE/PRE-READING

Alphabet Blocks (Sierra On-Line)
Bailey's Bookhouse (Edmark)
Circletime Tales (Don Johnston)
Dr. Peet's Picture Writer (Texas Courseware)
IntelliPics (IntelliTools)
KidTECH Programs (R.J. Cooper)
Kid Works 2 (Davidson)
KidsTime (Great Wave)
MacKids Preschool Pack (Nordic)
McGee Series (Broderbund)
The Playroom (Broderbund)
Storybook Theatre (WINGS for learning/Sunburst)
Storytime Tales (Don Johnston)
Thinkin' Things (Edmark)
UCLA Programs (UCLA/LAUSD)

MATH

IntelliPics (IntelliTools)
KidsMath (Great Wave)
MacKids Preschool Pack (Nordic)
Millie's Math House (Edmark)

COMMUNICATION/TALKING WORD PROCESSORS

Boardmaker (Mayer-Johnson)
Communication Board Builder (Mayer-Johnson)
Speaking Dynamically - Talking Symbols upgrade (Mayer-Johnson)
Write:OutLoud (Don Johnston)
IntelliTalk (IntelliTools)

CD-ROM

Aurthur's Teacher Trouble (Broderbund)
Discis Book Series (Discis)
Just Grandma and Me (Broderbund)
A Silly Noisy House (Voyager)

* **NOTE:** If an Apple IIe emulation card has been installed and a 5.25 disk drive attached, Apple IIe software can be run on the Macintosh LC.

IBM / MS-DOS SOFTWARE FOR EARLY LEARNING
Commercial Programs

CAUSE & EFFECT/SCANNING
The Creature Games Series (Laureate) - Echo PCII or Digispeech
Cause & Effect; Fundamental Concepts (Judy Lynn) - switch interface
Dino-Maze (Academic) - used with SS-ACCESS or BEST switch interface
Children's Switch Progressions (R.J. Cooper) - switch interface

GENERAL
Berenstain Bears: Fun With Colors (Britannica/Compton's)
Early Games for Young Children (Queue)
The Playroom & McGee Series (Broderbund) - mouse input best
Kids Stuff; My Letters, Numbers and Words (Stone & Assoc.)
Kid Works 2 (Davidson)
KidsTime PC (Great Wave)
Mickey's Colors & Shapes (Disney) - Sound Source
Shape & Color Rodeo; Comparison Kitchen (DLM)
Stepping Stones (Compu-Teach)
Stickybear Shapes; Stickybear Opposites (Optimum/Weekly Reader)
Talking Animals, Talking Alpha Chimp, Talking School Bus (Orange Cherry) - Covox

LANGUAGE/PRE-READING
Alphabet Circus (DLM)
Alphabet Zoo; Charlie Brown's ABC's - Digispeech; Easy as ABC (Queue)
Bailey's Book House (Edmark)
Berenstain Bears Learn Letters (Britannica/Compton's)
Bouncy Bee Learns Letters (IBM)
Early Vocabulary Development Series (Laureate) - Echo PCII or Digispeech
Easy As ABC (Spinnaker/Springboard)
I Love You in the Sky, Butterfly (Hartley)
Mickey's ABC's (Disney) - Sound Source
Reader Rabbit: Ready For Letters (The Learning Company)
Reading & Me (Davidson)
Stickybear Alphabet; Stickybear Reading (Optimum/Weekly Reader)
Talking First Words; Working with the Alphabet (Orange Cherry) - Covox speech included

MATH
Berenstain Bears Learn Counting (Britannica/Compton's)
Math & Me (Davidson)
Mickey's 123's (Disney) - Sound Source
Math Rabbit (The Learning Company)
Millie's Math House (Edmark)
Number Farm (DLM)

VOICE OUTPUT WORD PROCESSORS
Dr. Peet's Talk/Writer (Hartley) - Echo PCII or Digispeech
Keytalk (PEAL) - Echo PCII
Listen to Learn; Primary Editor + (IBM) - Digispeech or IBM speech
Talking Text Writer (Scholastic) - Echo PCII

GRAPHICS/ART
Big Book Maker Series - Echo PCII or Soundblaster; Facemaker-Golden Edition (Queue)
Kid Pix; Kid Pix Companion (Broderbund) - mouse input best
Switch Art (Judy Lynn Software) - switch interface
The Print Shop (Broderbund)

Software Companies

Academic Software
331 West Second Street
Lexington, KY 40507
800/VIA-ADLS

Britannica/Compton's New Media
722 Genevieve, Suite M
Solano Beach, CA 92075
619/259-0444

Broderbund Software
500 Redwood Blvd., Box 6125
Novato, CA 94948-6125
415/382-4400

*Colorado Easter Seal Society
5755 West Alameda
Lakewood, CO 80226
303/233-1666

Compu-Teach, Inc.
78 Olive Street
New Haven, CT 06511
800/448-3224

Davidson and Associates, Inc.
Box 2961
Torrance, CA 90509
800/545-7677

Disney Computer Software
500 South Buena Vista Street
Burbank, CA 91521
800/688-1520

DLM
One DLM Park
Allen, TX 75002
800/527-4747

Discis Knowledge Research, Inc.
PO Box 45099
Toronto, Ontario Canada M2N 6N2
800/567-4321

Don Johnston Developmental Equip.
PO Box 634, 1000 N. Rand Road
Wauconda, IL 60084
800/999-4660

Dunamis, Inc.
3620 Highway 317
Suwanee, GA 30174-2329
800/828-2443

Edmark Corporation
6727 185th Avenue, NE 21st
Redmond, WA 98052
800/426-0856

Educational Resources
1550 Executive Drive
Elgin, IL 60123
800/624-2926

Great Wave Software
5353 Scotts Valley Drive
Scotts Valley, CA 95066
408/438-1990

Hartley Courseware, Inc.
133 Bridge Street
Dimondale, MI 48821
800/247-1380

IBM Corporation
PO Box 2150
Atlanta, GA 30055
404/238-5020

IntelliTools
5221 Central Avenue, Suite 205
Richmond, CA 94804
800/899-6687

Judy Lynn Software
278 Dunhams Corner Road
East Brunswick, NJ 08816
908/390-8845

Laureate Learning Systems, Inc.
110 East Spring Street
Winooski, VT 05404
800/562-6801

The Learning Company
6493 Kaiser Drive
Fremont, CA 94555
800/853-2255

MarbleSoft
12301 Central Ave., NE Suite 205
Blaine, MN 55434
612/755-1402

Mayer-Johnson Company
PO Box 1579
Solano Beach, CA 92075
619/481-2489

Merit Software
13707 Gamma Road
Dallas, TX 75244
214/385-2353

Nordic Software, Inc.
917 Carlos
Lincoln, NE 68505
402/488-5086

Optimum Resource, Inc.
10 Station Place
Norfolk, CT 06058
800/327-1473

Orange Cherry Software
PO Box 390
Pound Ridge, NY 10576-0390
800/672-6002

PEAL Software
5000 North Parkway
Calabasas Suite 105
Calabasas, CA 91302
818/883-7849

Project ACTT
Macomb Projects
27 Horrabin Hall
Western Illinois University
Macomb, IL 61455
309/298-1634

Queue, Inc.
338 Commerce Drive
Fairfield, CT 06430
800/232-2224

* Denotes Public Domain Software

Random House
PO Box 408
Hightstown, NJ 08520-9377
800/843-8855

R.J. Cooper & Associates/KidTech
24843 Del Prado, Suite 283
Danan Point, CA 92629
714/240-1912

Scholastic Software
730 Broadway, Dept. JS
New York, NY 10003
415/492-3200

Sierra On-Line
PO Box 485
Coarsegold, CA 93614
800/326-6654

The Software Toolworks (SVE/
MINDSCAPE)
One Toolworks Plaza
13557 Ventura Blvd.
Sherman Oaks, CA 91423
800/234-3088

Spinnaker/Springboard
PO Box 690
Buffalo, NY 14207-0390
800/826-0706

Stone & Associates
7910 Ivanhoe Avenue, Suite 319
La Jolla, CA 92037
619/459-9173

Sunburst Communications
101 Castleton Street
Pleasantville, NY 10570
800/628-8897

Texas Courseware, Inc.
PO Box 9646
Spring, TX 77387-6646
800/728-6317

UCLA/LAUSD Microcomputer
Project
1000 Veteran Avenue, Room 23-10
Los Angeles, CA 90024
213/825-4821

Voyager Company
1351 Pacific Coast Highway
Santa Monica, CA 90401
800/446-2001

William K Bradford Publishing
310 School Street
Acton, MA 01720
508/263-6996

WINGS for learning/Sunburst
PO Box 660002
1600 Green Hills Road
Scotts Valley, CA 95067
800/628-8897

ASSISTIVE TECHNOLOGY VENDORS

AbleNet 1081 Tenth Avenue S.E., Minneapolis, MN 55414. 800/322-0956 (switches, interface, adapted devices).

Brown & Company, Inc. P.O. Box 861, Georgetown, MA 01833. 508/352-8822 (PC Pedal for MS-DOS).

Covox, Inc. 675 Conger Street, Eugene, OR 97402. 503/342-1271 (MS-DOS speech synthesizer).

DARCI TOO WesTest Engineering Corporation, 1470 North Main Street, Bountiful, UT 84010. 801/298-7100 (specialized joystick).

Digispeech, Inc. 550 Main Street, Suite J, Placerville, CA 95667. 916/621-1787 (MS-DOS speech synthesizer).

Don Johnston Developmental Equipment, Inc. P.O. Box 639, 1000 Rand Rd., Bldg. 115, Wauconda, IL 60084. 800/999-4660 (keyboards, switches, AFC, Ke:nx, specialized software,cornmunication products).

DUNAMIS, Inc. 3620 Highway 317, Suwanee, GA 30174. 800/828-2443 (PowerPad, software).

Echo Speech Corporation 6460 Via Real, Carpinteria, CA 93013. 805/684-4593 (Echo speech synthesizers).

Edmark Corporation 6727 185th Ave. NE 21st, Redmond, WA 98052. 800/426-0856 (TouchWindow, software).

IntelliTools 5221 Central Avenue, Suite 205, Richmond, CA 94804. 800/899-6687 (IntelliKeys, Unicorn Expanded Keyboard, voice output software).

JESANA, Ltd. PO Box 17, Irvington, NY 10533. 800/443-4728 (adapted toys, mobility and positioning aids).

Judy Lynn SOFTWARE 278 Dunhams Corner Rd., East Brunswick, NJ 08816. 908/390-8845 (IBM PC adaptor, cause and effect software).

Key Technologies P.O. Box 1997, Morganton, NC 28655. 704/433-530 (North Carolina representative for many products listed).

Prentke Romich Company 1022 Heyl Road, Wooster, OH 44691. 216/262-1984 (switches, keyguards, communication devices, electronic aids).

R.J. Cooper and Associates 24843 Del Prado, Suite. 283, Dana Point, CA 92629. 714/240-1912 (specialized software for keyboard, switch and TouchWindow).

Sunburst Communications 101 Castleton Street, Pleasantville, NY 10570. 800/628-8897 (Muppet Learning Keys and software).

TASH, Inc. Unit 1-91 Station Street, Ajax, Ontario, Canada L1S 3H2. 905/686-4129 (keyboards, switches, DADA Entry).

Toys for Special Children Inc. 385 Warburton Avenue, Hastings on Hudson, NY 10706. 914/478-0960 (adapted toys, switches).

Words + Inc. 40015 Sierra Highway, Bldg. B-145, Palmdale, CA 93550. 800/869-8521 (communication devices and specialized software for MS-DOS).

Zygo Industries Inc. P.O. Box 1008, Portland, OR 97207. 800/234-6006 (switches, communication devices, head pointer).

The Carolina Computer Access Center does not test, endorse or guarantee any of the products in this list. Buyers should make informed decisions regarding the purchase of any assistive device. Consult the vendor for current prices.

References

NATIONAL ASSISTIVE TECHNOLOGY RESOURCES

The Alliance for Technology Access: 1128 Solano Avenue, Albany, CA 94709, 800 / 992-8111 (national network of community-based, non-profit technology resource centers).

Closing The Gap: P.O. Box 68, Henderson, MN 56044, 612 / 248-3294 (newspaper, resource directory, technology conference).

IBM Corporation Special Needs Systems, 800 / 426-2468 (IBM Independence Series products).

Trace Research and Development Center: S-151, Waisman Center, 1500 Highland Ave., Madison, WI 53705, 608 / 262-6966 (research and product development).

Worldwide Disability Solutions: Apple Computer, Inc., 20525 Mariani Ave., M/S 435, Cupertino, CA 95014, 408 / 974-7910 (referrals and information).

NORTH CAROLINA ASSISTIVE TECHNOLOGY RESOURCES

Carolina Computer Access Center, 700 E. Second Street, Charlotte, NC 28202-2826, 704 / 342-3004 (regional technology resource center, member of Alliance for Technology Access).

Carolina Literacy Center, Department of Medical Allied Health Professions,730 Airport Rd., Suite 200, University of North Carolina at Chapel Hill, Chapel Hill, NC, 27599-8135, 919 / 966-7486 (services and information for persons with severe speech and physical impairments).

Exceptional Childrens Assistance Center (ECAC), P.O. Box 16, Davidson, NC 28036, 800 / 962-6817 (parent advocacy and training).

Family, Infant and Preschool Program, 300 Enola Rd., Morganton, NC 28655, 704 / 433-2629 (Early intervention with computers, family support).

North Carolina Assistive Technology Project,1110 Navaho Drive, Suite 101, Raleigh, NC 27609, 919 / 850-2787, or call: Greenville - 919 / 830-8575; Winston-Salem - 919 / 761-2290; Charlotte - 704 / 355-2703 (state technology project funded under a grant from NIDDR, U.S. Dept. of Education).

North Carolina Augmentative Communication Association, P.O. Box 54, Bethania, NC 2701 (membership newsletter, conference).

Technology-Related Newsletters

Aug-Communique (published by the N.C. Augmentative Communication Association)
N.C. Augmentative Communication Association
PO Box 54
Bethania, NC 27010
919/787-5109

Closing The Gap (published by Closing The Gap)
PO Box 68
Henderson, MN 56044
612/248-3294

Link-Up (published by the Carolina Computer Access Center)
Carolina Computer Access Center
Metro School
700 East Second Street
Charlotte, NC 28202-2826
704/342-3004

TechniCable (published by the N.C. Assistive Technology Project)
N.C. Assistive Technology Project
1110 Navaho Drive, Suite 101
Raleigh, NC 27609
919/850-2787

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